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Diagnosis of dengue virus infection with IgA anti Dengue rapid tests

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Background: Dengue IgM, IgG Capture ELISAs and NS1 Ag ELISA have become the most widely used serological methods for dengue diagnosis until now. Previous studies reported a possible use of IgA antibodies for dengue virus as a new serologic marker to make dengue infection active. In the present study, the performance of IgA anti-dengue rapid test as a new marker of dengue infection was assessed.

Methods: In this study, sera were obtained from 70 dengue virus infection patients and 30 non dengue virus infection patients. Seventy dengue paired sera were collected twice, at the time of hospital admission (acute) and discharge (convalescent). All sera samples were characterized using dengue reference ELISAs (NS1 Ag, Dengue IgM and IgG capture ELISAs). All of the dengue and non dengue samples were evaluated by Dengue IgA Rapid Test.

Results: The results of IgA anti-dengue rapid test were compared with the coresponding dengue reference tests. The sensitivity and specificity of IgA anti-dengue rapid test respectively were 82.9% (95%CI:72.4-89.9), and 73.3%(95%CI: 55.6%-85.8%). Meanwhile, from acute sera, sensitivity of IgA anti-dengue rapid test was 83.3%(95%CI:64.5-93.7), higher than IgM (73.3%,95%CI:53.8-87.0), IgG (66.7%,95%CI:47.1-82.1) and NS1 Ag ELISAs (60%,95%CI:40.7-76.8). Based on the day of fever, sensitivity of IgA anti-dengue from day 1-2 was 66.7%, day 3-4 was 84.8%, day 5-7 was 76.2% respectively. Positive IgA anti-dengue rapid test results in acute sera was higher in secondary (84.6%) than primary infection (77.7%).

Conclusion: IgA anti-dengue rapid test can be considered as a new marker of dengue infection, because it gives a high sensitivity, especially in the acute phase and in the secondary infections as well.

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First Report of Zoonotic Endocarditis in Egypt: High Prevalence of Brucella in Culture-Negative Endocarditis

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Background: Background:Zoonotic agents, such asCoxiella burnetii,Brucellaspp., andBartonellaspp.were frequently detected in diagnosed as definite IE are blood culture negative and the medical institutes in Egypt do not include zoonotic agents laboratory diagnosis in the IE workup.

Objective: To study the contribution ofBrucella spp., Bartonella spp.andCoxiella burnetiiin IE in Egypt and to study the application of laboratory detection methods for these agents as a routine in the IE workup.

Methods: Methods:A prospective study on patients with suspected IE referred to the Cardiology Department of Cairo University from February 2005 to February 2009. Three sets of blood culture were withdrawn on admission. Resected valves were cultured. Sera of patients were tested forBrucellaantibodies using standard agglutination test. IFA test for IgG forBartonella,and IgG, IgM, and IgA forCoxiella burnetiiwas done. PCR was performed on blood of patients with positive serology forBrucella,andon 33 cardiac valves forBartonella.

Results: Results:150 patients were diagnosed as definite IE; 50% of them had BCNE. By serology, zoonotic pathogens were identified in 11 of all IE patients;Brucellain 5,Bartonellain 5 andCoxiella burnetiiin 1. PCR forBrucellawas positive for the 5 patients and for one patient withBartonellapositive serology. After the completion of the research, the detection of zoonotic agents was applied as a routine in the IE workup for the first time in Egypt and this approach was also disseminated to other institutes through different educational activities and laboratory cooperation.

Conclusion: Conclusion:The study showed a higher proportion of IE due toBrucellathan any other reported in North Africa. The quality of IE patients management in Egypt was improved after completion the this work.

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One Step SYBR green Real-Time PCR for rapid diagnostic detection of mosquito-borne flaviviruses and alphaviruses

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Background: Mosquito-borne alphaviruses and flaviviruses are prevalent re-emerging arbovirus in tropical and subtropical regions of Asia, Africa, and Central and South America. It produces a spectrum of illness ranging from inapparent infection to moderate febrile illness as well as severe arthralgia, hemorraghic fever and fatal encephalitis. Rapid and affordable diagnostic technology platform coupled with high specificity and sensitivity for the detection of these viruses are in demand.

Methods: In this study, a quantitative, multiplex one-step real-time SYBR Green-based RT-PCR system for flaviviruses and alphaviruses was developed.

Results: Comparisons between the conventional semi-quantitative RT-PCR assay, immunofluorescence detection method and the one-step SYBR Green-based RT-PCR assay in the detection of mosquito-borne flaviviruses and alphaviruses revealed much rapid and increase sensitivity of the latter method. Furthermore,